

Claims

1. A dataconferencing appliance for use at a local site to facilitate a dataconferencing session between the local site and at least one geographically distant remote site, the local and remote sites being accessible via a shared voice call network and a shared data network, the remote site having a remote dataconferencing appliance connected to the voice call network and the data network, at least one of the local and remote sites having an image source for producing image data representative of an image, and the local site having a local display device for displaying the image at the local site, the dataconferencing appliance comprising:

a telephone adapter for connecting a telephone receiver to the voice call network so that a voice call session can be established between the telephone receiver and the remote site via the voice call network, the telephone adapter including circuitry for monitoring the voice call session and for transmitting signals within the voice call session;

a network interface for connecting the dataconferencing appliance to the data network; and

a dataconference control unit connected to the telephone adapter and the network interface, the dataconference control unit adapted for communication with the local display device, the dataconference control unit implementing a negotiation procedure that obtains a network access code and causes the telephone adapter to generate and transmit within the voice call session a signal representative of the network access code for receipt by the remote dataconferencing appliance,

the dataconference control unit being responsive to receipt at the telephone adapter of a remote signal transmitted from the remote dataconferencing appliance within the voice call session, the remote signal representing a remote network access code, and to establish a data communication session between the local and remote sites via the data network using the remote network access code, when received, and

thereby enabling image data to be transmitted between the local and remote sites over the data network for display via the local and remote display devices.

2. The dataconferencing appliance of claim 1, further comprising a telephone receiver for establishing the voice call session between the local and remote sites.

3. The dataconferencing appliance of claim 1 in which the transmitting of the signal within the voice call session includes transmitting an electronically generated audio signal representative of the network access code.

4. The dataconferencing appliance of claim 3 in which the electronically generated audio signal includes a series of DTMF tones.

5. The dataconferencing appliance of claim 1, further comprising an input key that, when manually activated, initiates the negotiation procedure to transmit the network access code within the voice call session.

6. The dataconferencing appliance of claim 5 in which the input key must be manually activated to establish the data communication session.

7. The dataconferencing appliance of claim 5 in which the input key includes a pushbutton.

8. The dataconferencing appliance of claim 1, further comprising a speakerphone having a telephone keypad.

9. The dataconferencing appliance of claim 1, further comprising a display device.

10. The dataconferencing appliance of claim 1, further comprising a display device and a speakerphone.

11. The dataconferencing appliance of claim 1, further comprising:
a housing; and

at least one network cable terminating in a network connector, the network cable retractable within the housing when not in use.

12. The dataconferencing appliance of claim 1, further comprising a PC-video-IN connector for attaching an image source thereto.

13. The dataconferencing appliance of claim 1, further comprising a wireless networking module adapted for wireless communication between the dataconferencing appliance and a wireless device selected from the following group:

- (a) an image source;
- (b) a display device; and
- (c) an infrastructure wireless networking access point.

14. The dataconferencing appliance of claim 1, further comprising a USB connector for connecting the dataconferencing appliance to the local display device.

15. The dataconferencing appliance of claim 1, further comprising a DVI connector for connecting the dataconferencing appliance to the local display device.

16. The dataconferencing appliance of claim 1, further comprising a speakerphone and a speakerphone toggle switch for controlling an on-hook/off-hook status of the speakerphone.

17. The dataconferencing appliance of claim 1, further comprising an electronic projector.

18. The dataconferencing appliance of claim 1, further comprising an image processing subsystem for communication with the network interface, the image processing subsystem adapted to receive compressed image data and to decompress the compressed image data before display via the local display device.

19. The dataconferencing appliance of claim 1, further comprising an image processing subsystem for communication with the network interface and the local display device, the image processing subsystem adapted to receive uncompressed image data and to compress the image data prior to transmission over the data network, the image processing subsystem further adapted to receive a compressed image data via the data network and to decompress the compressed image data before display via the local display device.

20. The dataconferencing appliance of claim 1 in which the local display device has a pixel resolution, and further comprising:

an image processing subsystem for communication with the local display device, the image processing subsystem adapted to receive image data and to resize the image data to fit the pixel resolution before display of the image via the local display device.

21. A distributed dataconferencing system for use with multiple sites at which a shared voice call network and a shared data network are accessible, each of the sites including a display device, comprising:

at each of the sites:

- (a) a telephone receiver coupled to the voice call network for establishing a voice call session with the telephone receivers of other sites over the voice call network for transmission of voice communications therebetween,
- (b) a network interface coupled to the data network, and

- (c) a dataconference control unit coupled to the voice call network, the dataconference control unit coupled to the network interface and the display device at said site;

at one or more of the sites, an input key coupled to the dataconference control unit; a negotiation procedure implemented in the dataconference control units, the negotiation procedure responsive to manual actuation of the input key to obtain a network access code and transmit the network access code within the voice call session, and the negotiation procedure responsive to receipt of a received network access code via the voice call session, to thereby establish a data communication session between the sites via the data network using one or both of the network access code and the received network access code; and

at least one image source for producing image data representative of an image, the image source coupled to one of the network interfaces for transmitting the image data to the sites via the data network, to thereby facilitate display of the image at the sites via the display devices.

22. The system of claim 21, further comprising, at each of the sites:

an image processing subsystem coupled to the network interface and the display device, the image processing subsystem adapted to receive image data, to compress the image data prior to transmission over the data network, and to decompress the compressed image data upon receipt of the compressed image data via the data network.

23. The system of claim 21 in which the display device at each of the sites has a pixel resolution, and further comprising, at each of the sites:

an image processing subsystem coupled to the network interface and the display device, the image processing subsystem adapted to receive image data and to resize the image data to fit the pixel resolution of the display device at said site before display of the image.

24. The system of claim 21 in which, at one or more of the sites, the dataconference control unit, the network interface, and the input key are integrated in a dataconferencing appliance.

25. The system of claim 24 in which the dataconferencing appliance includes an integrated speakerphone.

26. The system of claim 24 in which the dataconferencing appliance includes a wireless networking module.

27. The system of claim 21 in which the network interface at one or more of the sites includes a wireless networking module.

28. The system of claim 27 in which the wireless networking module is a short-range peer-to-peer wireless networking module.

29. The system of claim 21, further comprising, at each of the sites:
a telephone adapter connecting the telephone receiver and the dataconference control unit to an incoming telephone line of the voice call network, the telephone adapter configured to monitor the status of the incoming telephone line and report status information to the dataconference control unit,

the negotiation procedure of the dataconference control unit causing control signals to be issued from the dataconference control unit to the telephone adapter in response to manual activation of the input key, the control signals directing the telephone adapter to transmit within the voice call one or more electronically generated audio signals representing the network access code.

30. The system of claim 21, further comprising an Internet conference server accessible on the data network at an IP address, and in which the network access code transmitted within the voice call session includes the IP address.

31. The system of claim 21 in which the network access code transmitted within the voice call session includes a multicast group address.

32. The system of claim 21 in which the image source includes multiple image sources that generate a plurality of images, the image sources coupled to one or more of the network interfaces.

33. The system of claim 21 in which the network interface, display device, and dataconference control unit are integrated in a computer workstation at one or more of the sites.

34. The system of claim 33 in which the computer workstation includes the image source.

35. A dataconferencing system for use with a voice call network and a data network accessible at first and second sites, comprising:

- a first display device located at the first site;
- a first dataconferencing appliance coupled to the voice call network, the data network, and the first display device at the first site;

a second display device located at the second site;
a second dataconferencing appliance coupled to the voice call network, the data network, and the second display device at the second site; and
an image source coupled to one of the first and second dataconferencing appliances,
each of the first and second dataconferencing appliances implementing a negotiation procedure for obtaining a network access code, transmitting to the other dataconferencing appliance the network access code over the voice call network, and establishing a data communication session between the dataconferencing appliances via the data network using the network access code.

36. The system of claim 35 in which the image source is adapted to produce image data representative of an image, the first and second dataconferencing appliances are adapted to transmit the image data between the first and second sites over the data network, and further comprising:

a first image processing subsystem for communication with the first display device;
and

a second image processing subsystem for communication with and the second display device,

the first and second image processing subsystems adapted to receive the image data, to compress the image data prior to transmission over the data network, and to decompress the compressed image data upon receipt of the compressed image data via the data network.

37. The system of claim 35 in which the first and second display devices each has a pixel resolution, and further comprising:

a first image processing subsystem for communication with the first display device;
and

a second image processing subsystem for communication with the first display device,

the first and second image processing subsystems adapted to receive the image data and to resize the image data to fit the pixel resolution of the respective first and second display devices.

38. The system of claim 35 in which at least one of the dataconferencing appliances includes an integrated speakerphone.

39. The system of claim 35 in which at least one of the dataconferencing appliances includes a wireless networking module.

40. The system of claim 39 in which the wireless networking module is a short-range peer-to-peer wireless networking module.

41. The system of claim 35 in which each of the first and second dataconferencing appliances includes a dataconference control unit and a telephone adapter connecting the dataconference control unit to an incoming telephone line of the voice call network, the telephone adapter configured to monitor the status of the incoming telephone line and report status information to the dataconference control unit,

the negotiation procedure of the dataconferencing apparatus causing control signals to be issued from the dataconference control unit to the telephone adapter, the control signals directing the telephone adapter to transmit within the voice call one or more electronically generated audio signals representing the network access code.

42. The system of claim 35 in which each of the first and second dataconferencing appliances includes a dataconference control unit for executing the negotiation procedure and a network interface connecting the dataconference control unit and the image source to the data network.

43. The system of claim 35 in which each of the first and second display devices includes a network interface for connecting the display device to the dataconferencing appliance via the data network.

44. The system of claim 35, further comprising an Internet conference server accessible on the data network at an IP address, and in which the network access code transmitted over the voice call network includes the IP address.

45. The system of claim 35 in which the network access code transmitted over the voice call network includes a multicast group address.

46. The system of claim 35 in which the image source includes multiple image sources that generate a plurality of images, the image sources coupled to one or more of the dataconferencing appliances.

47. The system of claim 35 in which the first dataconferencing appliance and the first display device are integrated in a computer workstation.

48. The system of claim 47 in which the computer workstation includes the image source.